

L Number	Hits	Search Text	DB	Time stamp
1	5411	optical adj20 (epoxy or cement)	USPAT; EPO; JPO; DERWENT	2004/09/27 12:05
2	26350	diffraction adj2 grating	USPAT; EPO; JPO; DERWENT	2004/09/27 12:05
3	231	((optical adj20 (epoxy or cement)) and (diffraction adj2 grating))	USPAT; EPO; JPO; DERWENT	2004/09/27 12:06
4	216	master adj2 grating	USPAT; EPO; JPO; DERWENT	2004/09/27 12:06
5	2	((optical adj20 (epoxy or cement)) and (diffraction adj2 grating)) and (master adj2 grating)	USPAT; EPO; JPO; DERWENT	2004/09/27 12:06

\* \* \* \* \* STN Columbus \* \* \* \* \*

FILE 'HOME' ENTERED AT 14:09:05 ON 27 SEP 2004

=> b ca	SINCE FILE	TOTAL
COST IN U.S. DOLLARS	ENTRY	SESSION
FULL ESTIMATED COST	0.21	0.21

=> s diffraction(w)grating?  
367695 DIFFRACTION  
28601 GRATING?  
L1 12493 DIFFRACTION(W)GRATING?

=> s optical(w)(cement or epoxy)  
704562 OPTICAL  
132296 CEMENT  
209023 EPOXY  
L2 120 OPTICAL(W) (CEMENT OR EPOXY)

=> s l1 and l2  
L3 0 L1 AND L2

=> s l1 and master  
20658 MASTER  
L4 108 L1 AND MASTER

=> s l4 and master(w)grating?  
20658 MASTER  
28601 GRATING?  
33 MASTER(W)GRATING?  
L5 26 L4 AND MASTER(W)GRATING?

=> s l5 and epoxy  
209023 EPOXY  
L6 4 L5 AND EPOXY

=> d ti ab 1-4

L6 ANSWER 1 OF 4 CA COPYRIGHT 2004 ACS on STN  
TI \*\*\*Diffraction\*\*\* \*\*\*grating\*\*\* and fabrication technique for same  
AB Large, high quality \*\*\*diffraction\*\*\* \*\*\*gratings\*\*\* having  
carefully formed blazing angles and defect free reflective surfaces can be  
fabricated on specially oriented substrates using photolithog. or  
micromachining techniques. By selecting a single crystal substrate whose  
surface is at a known angle with respect to certain crystallog. planes of  
the substrate, anisotropic etching of the substrate can achieve  
\*\*\*diffraction\*\*\* \*\*\*grating\*\*\* grooves with reflective surfaces  
corresponding to the to specific crystallog. planes. The angle between  
the surface of the substrate and the specific crystallog. planes detcs. the  
blazing angle of the \*\*\*diffraction\*\*\* \*\*\*grating\*\*\*. Thus,  
large, high quality \*\*\*diffraction\*\*\* \*\*\*gratings\*\*\* can be  
fabricated for use in, for example, laser systems, or for use as  
\*\*\*master\*\*\* \*\*\*gratings\*\*\* in the manuf. of replica gratings.

L6 ANSWER 2 OF 4 CA COPYRIGHT 2004 ACS on STN  
TI Large \*\*\*diffraction\*\*\* \*\*\*grating\*\*\* for gas discharge laser  
AB A grating based line narrowing unit for gas discharge lasers with  
increased beam expansion to produce smaller bandwidths. The grating has a  
grating surface >100 cm2 and is a replica grating produced from a

\*\*\*master\*\*\* \*\*\*grating\*\*\* produced with a lithog. process on a single crystal substrate. In preferred embodiments, a beam from the chamber of the laser is expanded with 4 prism beam expanders. The large grating, much larger than gratings historically produced from diamond lined gratings, permit substantial redns. in bandwidth while maintaining laser efficiency. A narrow band of wavelengths in the expanded beam is reflected from a grating in a Littrow configuration back via the bi-directional beam expanders into the laser chamber for amplification.

L6 ANSWER 3 OF 4 CA COPYRIGHT 2004 ACS on STN  
TI UV protective overcoat for replicated \*\*\*diffraction\*\*\*

\*\*\*gratings\*\*\*  
AB An overcoat protected \*\*\*diffraction\*\*\* \*\*\*grating\*\*\*. A replica grating having a thin Al reflective grating surface is produced by replication of a \*\*\*master\*\*\* \*\*\*grating\*\*\* or a submaster grating. The thin Al reflective surface may be cracked or have relatively thick grain boundaries contg. oxides and hydroxides of Al and typically is also naturally coated with an Al oxide film. The grating is subsequently overcoated in a vacuum chamber with one or two thin, pure, dense Al overcoat layers and then also in the vacuum the Al overcoat layer or layers are coated with one or more thin protective layers of a material transparent to UV radiation. In preferred embodiments this protective layer is a single layer of MgF<sub>2</sub>, SiO<sub>2</sub> or Al<sub>2</sub>O<sub>3</sub>. In other preferred embodiments the layer is a layer of MgF<sub>2</sub> or SiO<sub>2</sub> covered with a layer of Al<sub>2</sub>O<sub>3</sub> and in a 3rd preferred embodiment the protective layer is made up of four alternating layers of MgF<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> or four alternating layers of SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub>. Preferably, the thickness of the transparent protective layers are chosen to produce a phase shift at the proposed operating wavelengths of an integral no. of 27.pi..

L6 ANSWER 4 OF 4 CA COPYRIGHT 2004 ACS on STN  
TI High-temperature \*\*\*diffraction\*\*\* \*\*\*gratings\*\*\* for synchrotron radiation

AB SiC-based mech. ruled \*\*\*master\*\*\* \*\*\*gratings\*\*\* and replicas are developed for synchrotron radiation instruments. An SiC-based Au replica grating without any thermal deformation due to active cooling is used in a high-photon-flux-soft x-ray monochromator that is installed in a bending magnet beamline. An SiC-based Au \*\*\*master\*\*\* \*\*\*grating\*\*\* is used in a vacuum UV/soft x-ray monochromator installed in an undulator beamline with slight groove shape deformation. This deformation is caused by the thermal change of the Au film occurring at higher than 250-300.degree.. A method for cleaning C-contaminated synchrotron radiation optics is tested. The UV ozone ashing method effectively cleans C contamination on the optics and is useful for extending the lifetime of synchrotron radiation optics.

=> s surface relief diffraction grating?

1849060 SURFACE  
24900 RELIEF  
367695 DIFFRACTION  
28601 GRATING?

L7 17 SURFACE RELIEF DIFFRACTION GRATING?  
(SURFACE(W)RELIEF(W)DIFFRACTION(W)GRATING?)

=> d his

(FILE 'HOME' ENTERED AT 14:09:05 ON 27 SEP 2004)

FILE 'CA' ENTERED AT 14:09:13 ON 27 SEP 2004

L1 12493 S DIFFRACTION(W)GRATING?  
L2 120 S OPTICAL(W)(CEMENT OR EPOXY)  
L3 0 S L1 AND L2

L4 108 S L1 AND MASTER  
L5 26 S L4 AND MASTER(W) GRATING?  
L6 4 S L5 AND EPOXY  
L7 17 S SURFACE RELIEF DIFFRACTION GRATING?

=> s l1 and (antibod? or antigen)

406028 ANTIBOD?

254490 ANTIGEN

L8 44 L1 AND (ANTIBOD? OR ANTIGEN)

=> s l8 and etch

36190 ETCH

L9 0 L8 AND ETCH

=> s l8 and mold?

336910 MOLD?

L10 2 L8 AND MOLD?

=> d ti ab 1-2

L10 ANSWER 1 OF 2 CA COPYRIGHT 2004 ACS on STN

TI Device with chemical surface patterns

AB The invention concerns a device with chem. surface patterns (defined surface areas of at least two different chem. compns.) with biochem. or biol. relevance on substrates with prefabricated patterns of at least two different types of regions (.alpha., .beta.,...), whereas at least two different, consecutively applied mol. self-assembly systems (A, B...) are used in a way that at least one of the applied assembly systems (A or B or...) is specific to one type of the prefabricated patterns (.alpha. or .beta. or...). A silicon wafer was coated with TiO2 followed by SiO2 and a pattern of 5 X 5 squares of TiO2 was etched through the SiO2 layer. The patterned surface was dipped in aq. ammonium dodecyl phosphate for self-assembly of DDP on top of the TiO2 areas, rendering these areas highly hydrophobic. The surface was dipped in an aq. soln. of poly(L-lysine)-g-poly(ethylene glycol) (PLL-g-PEG) to selectively adsorbed to the SiO2 regions. Texas Red-streptavidin selectively adsorbed to the PLL-g-PEG coating.

L10 ANSWER 2 OF 2 CA COPYRIGHT 2004 ACS on STN

TI Diffraction-based cell detection using a micro-contact-printed

\*\*\*antibody\*\*\* grating

AB An optical biol. detector is able to bind specific targeted bacterial cells by stamping an \*\*\*antibody\*\*\* grating pattern onto a silicon surface. The \*\*\*antibody\*\*\* grating alone produces insignificant optical diffraction, but upon immunocapture of the targeted cells, the optical phase change produces a diffraction pattern. Micro-contact printing provides a method for placing the \*\*\*antibody\*\*\* grating pattern directly onto a substrate surface with no addnl. processes or binding chems. \*\*\*Antibodies\*\*\* or other biol. active material may be stamped directly onto clean native oxide silicon substrates with no other chem. surface treatments. Direct binding of the \*\*\*antibodies\*\*\* to the silicon occurs in a way that still allows them to function and selectively bind \*\*\*antigen\*\*\*. The performance of the sensor was evaluated by capturing Escherichia coli O157:H7 cells on the \*\*\*antibody\*\*\* -stamped lines and measuring the intensity of the first order diffraction beam resulting from the attachment of cells. The diffraction intensity increases in proportion to the cell d. bound on the surface.

=> d his

FILE 'CA' ENTERED AT 14:09:13 ON 27 SEP 2004

L1 12493 S DIFFRACTION(W) GRATING?  
L2 120 S OPTICAL(W) (CEMENT OR EPOXY)  
L3 0 S L1 AND L2  
L4 108 S L1 AND MASTER  
L5 26 S L4 AND MASTER(W) GRATING?  
L6 4 S L5 AND EPOXY  
L7 17 S SURFACE RELIEF DIFFRACTION GRATING?  
L8 44 S L1 AND (ANTIBOD? OR ANTIGEN)  
L9 0 S L8 AND ETCH  
L10 2 S L8 AND MOLD?